August, 1924. The greatest deficiency of precipitation occurred on the immediate coast of Texas, with only a "trace" of rain at Galveston and 0.02 inch at Corpus Christi. In general features of the pressure distribution over the Atlantic and Gulf States and of rainfall on the Texas coast, this August resembles August, 1902, when there was no rain at Galveston and only a "trace" at Corpus Christi; but August, 1902, on the whole, was drier in the interior of Texas than August, 1924.

No high winds occurred and no warnings were issued. —*R. A. Dyke.*

DENVER FORECAST DISTRICT

The distribution, direction, and velocity of movement, and intensity of areas of high and low atmospheric pressure during August were such as to fail to produce the usual precipitation from thunderstorms in the Denver district, except in western Colorado, where precipitation was normal. Temperatures were generally above normal over the district. The deficiency in precipitation in eastern Colorado was most pronounced, the month being one of the driest on record in that section. High-pressure areas, which in conjunction with Arizona low areas, are effective usually in producing summer thunderstorms in eastern Colorado, either were too feeble, too rapid in movement, or following a course too far northward to cause normal showers. As precipitation had been deficient throughout the summer, the dryness became acute during the latter half of the month.

On the evening of the 18th a low-pressure area, moving slowly over Colorado, indicated increasing westerly to northerly winds, very low humidity and high temperatures in the eastern portion of the State, and consequently forest officials were warned of the expected increase in the already high fire hazard. As low pressure continued over this region and developed somewhat in intensity, similar warnings were issued on the evenings of the 19th and 20th. During the period covered by these warnings the relative humidity at Denver was very low, the lowest observed being 7 per cent and the highest temperature was 91°, while at the elevated lookout station on Devil's Head, within the forested region, the wind movement was high and a maximum velocity of 40 miles an hour was recorded at one observation.

Owing to the demand for the information and the graveness of the situation, advice was published, beginning on the 21st, each morning during the remainder of the month relative to the fire hazard as affected by the meteorological conditions expected. Appreciation was expressed for the service rendered by the Weather Bureau, as it proved of value in coping with forest fires.

No other warnings were required.—*Lawrence C. Fisher.*

SAN FRANCISCO FORECAST DISTRICT

The outstanding feature of the weather in this district during August, 1924, was a small storm which appeared near Sitka on the 16th, moved southward along the coast on the 17th, and passed inland over British Columbia, near the international boundary, on the 18th. It gave light but general rain over the northern portion of this district and extended southward into the extreme northern counties of California. The rain greatly relieved the dangerous forest-fire condition in the areas in which it fell.

During the first decade the temperature was nearly normal throughout the district. In the first three days of the second decade there was a marked warming up in the northern portion of the district, which was followed by unsettled and cooler weather from the 16th to the 21st, over the entire district. A marked warm spell accompanied by low humidity prevailed over the interior of the entire district from the 23d to the 28th. On the afternoon of the 27th the record for high temperature in August was broken at Fresno, where the thermometer reached 110°.

The fire-weather hazard was high in the interior sections during the greater portion of the month and advices were broadcast twice daily covering this condition. No other warnings were required.—*G. W. Willson.*

RIVERS AND FLOODS

By H. C. FRANKENFIELD, Meteorologist

Aside from that in the Illinois River, no extensive floods occurred in the principal rivers of the country during August, 1924. Considerable damage to farms, rural communities, highways, and railroad property, and some loss of life occurred, however, from local floods which followed unusually heavy rainfall during the first three weeks of the month over eastern Iowa, southern Wisconsin, and northern Illinois. In the latter State the major portion of the damage—principally to harvested crops, livestock, and highway and railroad bridges—occurred in Henry, Knox, Mercer, and Stark Counties, following the rains of the 19th and 20th.

In east-central Iowa during the same period local damage of a similar character was considerable and two fatalities occurred.

In southern Wisconsin, following the very excessive rains of August 3–6, the highest flood of record and nine fatalities occurred in the Milwaukee River Valley, and losses and damage in this and other sections was estimated at upward of $1,000,000. In the Milwaukee River the current was so swift that large steamers were compelled to anchor outside the harbor, some being delayed for three days. A moderate repetition of the conditions occurred with one fatality between Lake Winnebago and Lake Michigan following the rains between the 19th and 21st.

The more general flood in the Illinois River, occurring less than two weeks after the subsidence of the flood of late June–July, was brought about by the same general rains of August 19–21. This flood was chiefly remarkable for its time of occurrence, as high stages in the late summer are rare in the Illinois River. Stages in the upper river were generally somewhat higher than during the late June–July flood; but losses, which in the latter were considerable to crops and in finally preventing late planting, were not materially increased in this respect. Flood warnings were timely and well verified. The property losses were enormous when the limited territory involved is considered. Detailed statements could not be obtained, but newspaper estimates were as high as $3,000,000, mainly along the smaller tributary streams, with railroads probably the greatest sufferers.

The same general rainfall conditions also caused a local flood in the Mississippi River district from the mouth of the Des Moines to the mouth of the Illinois River. Warnings were issued on August 23 and very little damage was done, about $5,000 in crops, as the lowlands had been overflowed since early July.

On August 11 heavy local mountain rains caused a severe flood in the Galisteo River, a tributary of the Rio Grande, in northern New Mexico. The town of Lamy was inundated, and the losses in the town and adjacent country were probably as much as $500,000.

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC DRAINAGE					
Cape Fear:	*Feet*			*Feet*	
Elizabethtown, N. C.	22	5	6	22.7	6
MISSISSIPPI DRAINAGE					
Mississippi:					
Quincy, Ill.	14	26	27	14.1	26
Hannibal, Mo.	13	24	29	14.3	27
Louisiana, Mo.	12	25	29	13.2	12
Illinois:					
Morris, Ill.	13	9	13	18.2	10
Peru, Ill.	14	8	(1)	19.8	11
Henry, Ill.	7	8	(1)	13.7	23–24
Peoria, Ill.	16	10	(1)	21.0	24
Havana, Ill.	14	12	(1)	19.0	25
Beardstown, Ill.	12	(2)	(1)	19.1	28–29
Pearl, Ill.	12	24	(1)	15.7	30
Neosho:					
Oswego, Kans.	17	7	7	17.3	7
North Canadian:					
Woodward, Okla.	4	14	14	4.5	14

[1] Continued at end of month.
[2] Continued from last month.

MEAN LAKE LEVELS DURING AUGUST, 1924

By UNITED STATES LAKE SURVEY

[Detroit, Mich., Sept. 4, 1924]

The following data are reported in the "Notice to Mariners" of the above date:

Data	Lakes [1]			
	Superior	Michigan and Huron	Erie	Ontario
Mean level during August, 1924:	*Feet*	*Feet*	*Feet*	*Feet*
Above mean sea level at New York	601.65	579.62	572.16	246.04
Above or below—				
Mean stage of July, 1924	+0.26	+0.10	−0.29	−0.17
Mean stage of August, 1923	−0.34	−0.13	+0.47	+0.63
Average stage for August last 10 years	−1.00	−1.19	−0.46	−0.34
Highest recorded August stage	−2.28	−3.89	−1.95	−2.22
Lowest recorded August stage	+0.05	−0.13	+0.78	+1.69
Average relation of the August level to—				
July level	----------	−0.1	−0.2	−0.3
September level	----------	+0.2	+0.2	+0.4

[1] Lake St. Clair's level: In August, 1924, 574.83 feet.

EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS—AUGUST, 1924

551.5 : 633 (73)

By J. B. KINCER

General summary.—The first 10 days of August were on the whole, rather favorable for farm interests in Central and Northern States east of the Rocky Mountains. There was considerable rainfall in some sections where drought had prevailed, especially in the western Great Plains, parts of the Ohio Valley, and middle Atlantic area, and the increased moisture was beneficial for growing crops. It continued too cool for warm-weather crops, however, in the Central-Northern States, while frequent rainfall in that area caused considerable interruption to farm work. It had become dry in the south Atlantic districts, and drought continued in the central and west Gulf areas, where all crops suffered severely. Fine growing weather prevailed in the lower Missouri Valley and in the southern Great Plains.

The second decade of the month was too cool for best growth in the interior States; decidedly so in most of the Ohio Valley. Crops made fairly good growth, however, in the central Great Plains and lower Missouri Valley, where there was sufficient moisture and an abundance of sunshine. They showed material improvement during this period in the Middle and North Atlantic States, by reason of the increased soil moisture, but at the same time it continued generally dry in the South.

The last decade of the month brought much warmer weather to the interior valleys and Northern States, which was very beneficial to growing crops, though more moisture was needed locally. Late vegetation showed continued improvement in the Northwestern States as a result of better growing conditions, but at the close of the month it was again getting dry. Severe drought persisted in the Great Basin, and droughty conditions in the South were intensified by the continued absence of moisture. Most crops suffered, especially gardens, truck, and late corn.

Wheat.—Spring wheat matured rapidly during the first few days of the month under generally favorable weather conditions. There was considerable infection of wheat by black stem rust in North Dakota, but the bulk of the crop was too near maturity for material damage. Harvest made good progress and was rushed in North Dakota to avoid rust damage. Fairly good advance was made in threshing winter wheat during the first half of the month, although there was some delay by frequent rains in the upper Mississippi Valley. The last half was rather unfavorable for threshing in the western Lake region, the upper Mississippi Valley, and northern Great Plains, because of frequent rainfall, with considerable damage reported to grain in shock.

Corn.—Conditions, in general, were rather unfavorable for corn during the first three weeks of the month, because of persistently cool weather from the central valley States northward. Growth was good, however, in the Plains States and fairly satisfactory in the lower Missouri Valley. In the South, late corn suffered severely from the dry weather. Corn was 10 days to as much as 3 weeks late in most of the principal producing area, and warm weather was badly needed to hasten maturity. The last 10 days of the month, however, had generally warmer weather throughout the central and northern portions of the country, and the corn crop responded nicely to the improved temperature conditions. Splendid progress toward maturity was reported in the central Great Plains States. There was some deterioration in Ohio and parts of Kentucky because of insufficient moisture.

Cotton.—There was considerable rainfall the first part of the month in the northern portions of the Cotton Belt, including northern and northwestern Texas, and progress of the crop was mostly fair to very good in those regions. Moisture was needed in other portions of the belt where the advance was less satisfactory. During the second decade rainfall was of a local character, and moisture continued insufficient in many sections, though there were beneficial rains in parts of the Mississippi Valley States, and good local showers in the western portion of the belt.

The progress and condition of cotton continued very good in the extreme western and northwestern portions of Texas, but were generally poor elsewhere because of the drought, with bolls small in the dry areas and opening prematurely. There were sufficient showers to be beneficial in Oklahoma the latter part of the month, but rain was generally needed, with progress of cotton ranging from fair in the north to poor in the south. Dryness prevented satisfactory growth in the central States of the belt, with some deterioration reported. The drought was partially relieved by irregular showers in Georgia the latter part of the month, but most sections continued dry and cotton showed further deterioration, while the drough